INDIANA WORKFORCE DEVELOPMENT

Root Causes Cover Sheet

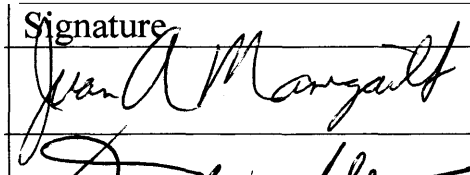
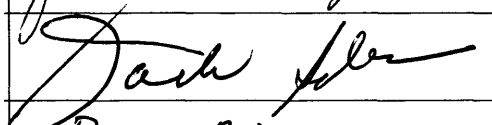
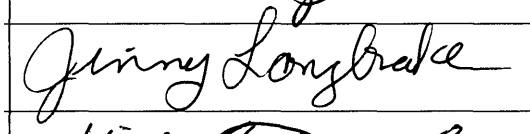
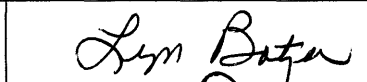
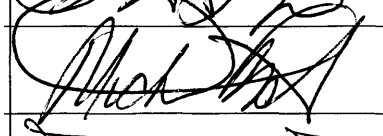
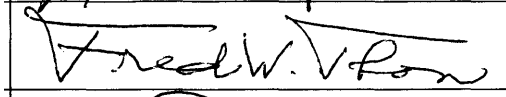
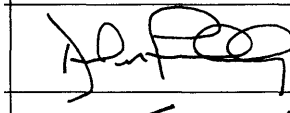
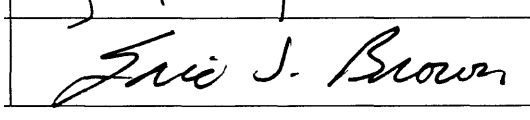
Economic Growth Region #__2___: Northern Indiana

1. Designated Grantee			
Organization Name: **Northern Indiana Workforce Investment Board, Inc.**			**Telephone Number:** **574-239-2380**
Address: **401 E. Colfax Avenue, Suite 307**			**Fax Number:** **574-239-2386**
Address: **P.O. Box 1048**			**Email Address:**
City: **South Bend**	**State:** **IN**		**Zip + 4:** **46624-1048**
County: St. Joseph	**FEIN: 35-1588931**		
2. Contact Person			
Mr. **Ms.** **Dr.** **Other**	**First Name:** **Juan**		**Last Name:** **Manigault**
	Title: **President and CEO**		**Telephone Number:** **574-239-2380 ex.212**
Address: **401 E. Colfax Avenue, Suite 307**			**Fax Number:** **574-239-2386**
Address: **P.O. Box 1048**			**Email Address:** **Jam200@niwib.com**
City: **South Bend**	**State:** **IN**		**Zip + 4:** **46624-1048**
Member:	**Name**		

Lead Team Members			
Name:	**Industry:**	**Title:**	**Signature:**
SEE ATTACHED	SIGNATURE	PAGE	

Northern Indiana SSI Phase Two – Determined Root Causes for Strategic Skill Shortages

Signature Page:

Name	Industry	Title	Signature
Juan Manigault	Core Agent	President and CEO Northern Indiana Workforce Investment Board	
Jack Isles	Advanced Manufacturing	General Manager Bull Moose Tube Company	
Brad Bishop	Life Sciences	Director of Corporate Communications Zimmer Corporation	
Jinny Longbrake	Health Care	Director of Human Resources Memorial Hospital	
Michael Busch	Economic Development	Executive Director Fulton Economic Development Corporation	
Lyn Batzer	Education	Dean of Academic Affairs Ivy Tech Community College	
Dave Gibson	Insurance and CBORBO	Chairman of the Board Gibson Insurance Group	
Michael Patton	CBORBO	President Urban League of South Bend and St. Joseph County	
Federico Thon	CBORBO	Assistant to the Mayor Hispanic Chamber of Commerce	
David Findlay	Financial Services	Executive Vice President and CFO Lake City Bank	
Eric Brown	Organized Labor	Vice President, AFL-CIO Central Labor Council	

All counties represented.

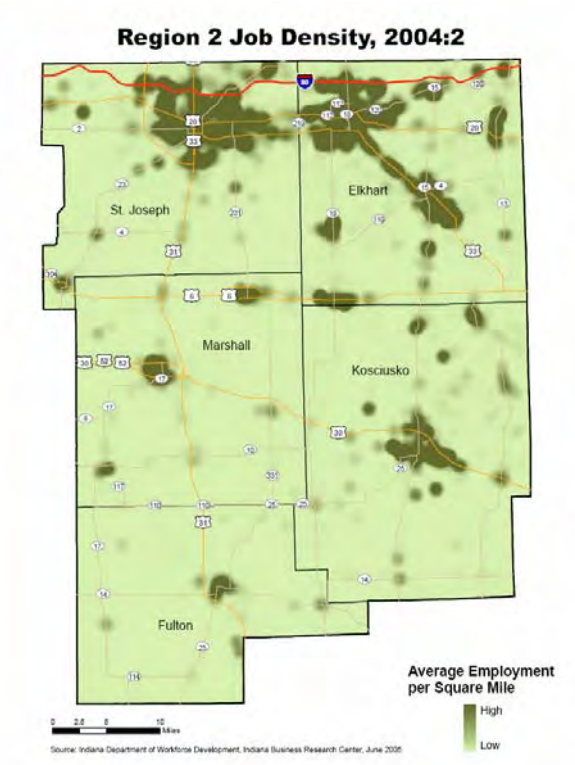
Grading Scorecard Guide

Root Cause Report

Thorough and Logical Methodology	*Location*
Clear statement of how recommended methodology was employed	pp. 16, 34-43, Appendix
Consortium used IDWD Web-based Workshops	p. 34
Discussed Employer Recruitment and Retention	pp. 10-11, 18, 24-26, 27, App.
Discussed Education and Training Capacity and Student Completion/ Placement	pp. 9-12, 14-15, 18-19, 24-28, 32-33, Appendix
Discussed Student/Worker Career Awareness Access	pp. 9-10, 15, 19, 22-23, 27-28 34-37
Discussed Wage Rates and Benefits	pp. 8-9, 20-23, 28-31 Appendix
Description of Root Causes and Their Impacts:	
Clear Description of each Root Cause	pp. 9-10, 10-12, 14-15, 22-26
Discussion of Relative Importance to Addressing Skill Shortages	pp. 8-9, 18-19, 22, 27-28, 38
Evidence given as to how the Root Cause was Identified	p. 16, pp. 41-43, 47, Appendix
Ranking of each root cause	pp. 9-10, 10-12, 14-15, 22-23, 24-26
Qualitative assessment of the sensitivity of the projected future Shortages to changes in the root cause	pp. 10-12, 14-15, 24-26, 32-33
Quantitative estimation of the reduction of future shortages	pp. 10-12, 14-15, 24-26, 32-33
Regional Coalition and Industry Partner Engagement:	
Regional Consortia were provided a participatory opportunity	pp. 16-17, 47-48, Appendix
Determination of Root Causes was truly regional	pp. 16-17, 47-48, Appendix
Industry Partners were involved in entire process	p. 17, 48, Appendix
Regional Partners endorse project	Signature page, Appendix p. 93

Strategic Skills Initiative
Phase Two Report

Root Causes



Northern Indiana Workforce Investment Board, Inc.
VISIONARY LEADERSHIP FOR TOMORROW'S WORKFORCE

Juan Manigault	Dan Hendricks	Chuck Pressler, Ph. D
President/CEO	Vice President of Strategic Research & Development	Director of Research
Core Agent		
jam200@niwib.com	dhendricks@niwib.com	cpressler@niwib.com
574-239-2380 ext.:212	574-239-2380 ext.: 229	574-239-2380 ext.: 231

The Commerce Center, 401 East Colfax Ave., Suite 307, South Bend, IN 46617

The Northern Indiana region has had a long dependence on manufacturing. As we move towards a knowledge-based economy, our region will face tremendous challenges to maintain a strong and viable economy. The solution is the development of a strong vision that incorporates the history of our past, while identifying the opportunities of the future. Globalization and innovation are the key drivers that must incorporate the new technologies---nano, geo-spatial and biochemistry---into our future occupations and skill sets. The Strategic Skills Initiative provides our region the opportunity to build a dynamic vision and plan to assure that Northern Indiana participates fully in the economic agenda of the 21st Century.

- *Juan Manigault, President, CEO*
  Northern Indiana Workforce Investment Board

Table of Contents

Executive Summary

EGR 2's Competitive Position is Precarious

The five counties comprising the state's Economic Growth Region 2 – Fulton, Kosciusko, Marshall, Elkhart, and St. Joseph – currently find themselves in a rather precarious, and potentially dire, situation. Northern Indiana's 2005 State of the Workforce Report, "*Competing for Opportunity*" analyzed the region's position relative to Michiana, the State of Indiana, and the nation as a whole[1] using Comparative Workforce Indicators.® The Indicators examine the areas of comparison based on a variety of community, economic, and workforce indicators. Over 40 micro measures are used to aggregate to ten key macro indicators.

In the end analysis, Northern Indiana was found to be slightly more competitive than Michiana and the nation as a whole, and about equally competitive to Indiana. But being "slightly more competitive" is a shaky proposition. The world is changing too fast and we are too globally interconnected to keep our position if any internal or external factors change. And, as the "*Competing for Opportunity*" report said, "averages hide both strengths and troubling challenges, and no single set of indicators tells the entire story. To *maintain* its position, much less *improve* its competitive position, the region needs to embrace two critical keys to future success: knowledge and innovation."

EGR 2's Prosperity Relies Too Heavily on Declining Industry

The greatest proportion of EGR 2's economic activity is based on traditional sectors and styles of manufacturing, and although the region has experienced strong growth and excellent stability in those industries for quite some time, it is now at a watershed. One may begin to understand this by examining the current employment shift share statistics:

	Shift Share		
Strategic Occupational Sectors (NAICS)	**National**	**Industry**	**Region**
336 Transportation Equipment	4766	-8167	10333
3391 Misc. Mfg. – Medical Equip.	836	-1319	2813
332 Fabricated Metals Mfg.	800	-2419	991
326 Plastics and Rubber Products	1788	-2474	-1169
33 Machinery Manufacturing	652	-1384	107

[1] Northern Indiana includes all the EGR 2 Counties with the exception of Fulton. Since Fulton represents such a small percentage of the region's population and workers, conclusions about EGR 2 may be reasonably drawn from the Northern Indiana data. Inclusion of Fulton data would have a negligible impact on the analysis.

These data indicate EGR 2 enjoys a "competitive advantage" over other regions of not only the state, but also the nation. A positive number in the industry share column would tell us that we possess a favorable share of industries that are growing at the national level, but EGR 2 has sizeable negative numbers for each subsector. These subsectors comprise the bulk of EGR 2 economic activity in terms of both employment and value-added dollars which begs the question: given that the companies comprising the bulk of EGR 2 economic activity, and belong to sectors that are declining on the national level, how long will it be before that trend catches up (or down, as the case may be) to our region?

Given that the companies comprising the bulk of EGR 2 economic activity belong to sectors that are declining on the national level, how long will it be before that trend catches up (or down, as the case may be) to our region?

EGR 2 Productivity Points to Need for Innovation and Higher Skills

An additional concern, and perhaps a similar warning signal, deals with EGR 2 productivity. Much of the loss of manufacturing employment nationwide is due to improved productivity, which itself is the result of innovations in technology and work practices. When the two major metropolitan statistical areas (MSAs) of our region are compared with random, yet similar, MSAs nationwide, the data are favorable for Elkhart, but worrisome for South Bend. Elkhart and South Bend are the major centers of manufacturing in EGR 2 and they draw from the larger region for workers.

MSA Productivity Comparisons, 2003

MSA	Worker Productivity[2]	Labor Force Productivity[3]
Spokane, WA	94235.1	83053.81
National Average	$86234.39	$74995.39
Benton Harbor, MI	84131.44	65552.27
Elkhart, IN	83008.36	94955.12
Reno, NV	82656	83500.16
Grand Rapids, MI	80520.19	69066.47
Green Bay, WI	77379.95	75140.35
Sioux Falls, SD	75401.54	78527.83
Des Moines, Iowa	74905.87	76300.42
Knoxville, TN	74757.96	67166.32
Madison, WI	73906.47	70799.62
Lexington, KY	73766.79	74187.96
Springfield, MO	71826.56	65850.01
South Bend, IN	71125.54	64211.3

[2] Worker productivity is calculated by GMP/total employment in MSA.
[3] Labor force productivity is calculated by GMP/Average annual MSA workforce

Greenville, SC	70716.26	64293.3
Huntsville, AL	68979.96	68863.34
Boise, ID	68718.73	62833.73
Charleston, SC	67860.19	57541.01
Fargo, ND	55579	52202
Estimated worker productivity = GMP/total employment Employment http://www.bls.gov/oes/2002/oessrcma.htm GMP http://www.usmayors.org/metroeconomies/1004/metroeconomiestables_1004.xls Labor force http://www.bls.gov/schedule/archives/metro_nr.htm		

While the Elkhart MSA is among the highest listed, one must remember that more than half of that MSA's economy is in the highly volatile transportation equipment sector.[4] Hurricanes, interest rates, and gasoline prices can exhibit extraordinary influences on the health of that sector. More bothersome, perhaps, are the data for South Bend, whose economy is much more reliant on old, traditional forms of manufacturing, and whose productivity ranks among the lowest cited.

Another set of data may help to uncover the problem. When ranked for per capita income growth, South Bend and Elkhart MSA would both come out near the top. Elkhart would be first, and South Bend fourth. However, when ranked for projected real output growth, they are all but last.

MSA Per Capita Income and Real Output Growth Comparisons

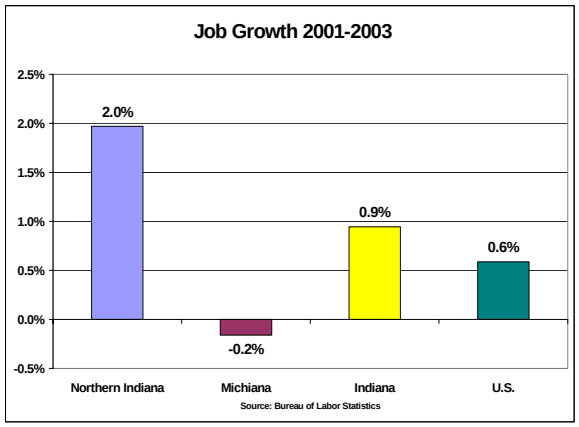
MSA	Per Capita Income Growth (2001 - 2003)	Real Output Growth Rate (projected for 2000- 2006)
Reno, NV	1.17	3.8
Boise, ID	0.95	3.7
Knoxville, TN	3.05	3.1
Charleston, SC	3.06	2.9
Greenville, SC	1.63	2.9
Lexington, KY	2.74	2.8
Sioux Falls, SD	3.25	2.8
Madison, WI	2.55	2.7
Fargo, ND	4.88	2.3
Grand Rapids, MI	0.76	2.3
Green Bay, WI	2.40	2.2
Huntsville, AL	4.23	2.2
Des Moines, Iowa	2.09	2.0
Spokane, WA	1.92	2.0

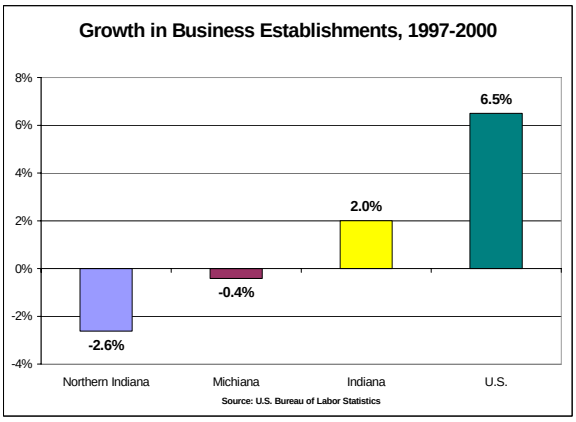
[4] Elkhart's worker productivity is much larger than the labor force productivity number because of how the numbers are figured. The labor force number is larger when there is a net in-migration of laborers, which is certainly true in Elkhart. The number of people employed there is 143,000+. The incumbent workforce is 100,003, and there are 4200 people unemployed. So GMP/employment (143,000+) would be smaller than GMP/labor force (100,003), thus skewing the productivity numbers.

Springfield, MO	2.52	2.0
South Bend, IN	3.58	1.9
Elkhart, IN	5.53	1.6
Benton Harbor, MI	1.72	1.5
Real Output Growth Rate http://www.usmayors.org/71stWinterMeeting/metroreportcharts_012203.pdf per capita income growth http://www.bea.doc.gov/bea/newsrelarchive/2005/mpi0405.htm		

There are indications that few businesses are being created in the area; however, job growth exceeds the national average. Between 1997 and 2000, the final years of the booming '90s and prior to the recession, the growth of business establishments was negative in Northern Indiana, yet positive for the state and highly positive for the nation. During the recession itself, an interesting shift occurred: job growth was much more positive in the region than for the state and nation. An implication might be that small firms closed and workers pursued growing job opportunities at the larger firms.

Predictions for the future are not optimistic for South Bend. Economy.com projected that during the period 2002-2007, Northern Indiana would only experience 1.0% growth. Sperling's Best Places predicts that the U.S. future job growth rate will be 10.8% while South Bend is only predicted to grow by 2.5%. Plymouth, however, will enjoy a 9.1% job growth rate, Warsaw 9.4%, and Elkhart an amazing 13.9%.





South Bend's lower productivity, slow projected growth, and low output are troubling factors, particularly in view of its large percentage of low-income and minority populations and school lower achievement scores.

Another indicator of business vitality is business churn. Business churn (*i.e.* entry plus exit rates) is commonly viewed as a measure of the ability of economies to expand the boundaries of economic activity, to shift resources towards growing areas and away from declining areas, and to adjust the structure of production to meet consumers' changing needs. Higher rates of business creation and turnover are generally held to benefit economic growth, job creation and poverty alleviation.

$$\text{Business churn} = \frac{(\text{\# firm births per year} + \text{\# of firm terminations})}{\text{all employer firms in the MSA}} * 100$$

While the data below is only for a one year period of comparison and only for select MSAs, it nevertheless is an indicator of economic sluggishness in the Elkhart and South Bend MSAs.

Selected MSA Business Churn, 2001-2002

MSA	Business Churn, 2001-2002
Boise, ID	28.11
Reno, NV	27.39
Springfield, MO	25.82
Charleston, SC	25.39
Spokane, WA	24.33
Huntsville, AL	23.90
Lexington, KY	23.14
Knoxville, TN	23.09
Greenville, SC	23.08
Green Bay, WI	22.58
Grand Rapids, MI	22.16
Des Moines, Iowa	21.64
Sioux Falls, SD	21.56
Madison, WI	20.95
Fargo, ND	20.51
South Bend, IN	19.87
Elkhart, IN	19.69
Benton Harbor, MI	19.40

Source: www.sba.gov/advo/research/dyn_msa02.pdf

The only areas showing business churn numbers below 20.0 are those in the extended EGR 2 (Michiana) area. Thus, data indicate that both establishments and jobs located in EGR 2 are indeed growing in numbers, but not in such quantities that will enable the region to maintain its shift share advantage for the long term.

The EGR 2 Consortium and Northern Indiana Workforce Investment Board view these data with a measure of alarm, and intend to structure the community's approach to the development of the regional workforce from two directions. On the one hand, and consistent with the Strategic Skills Initiative, the causes of the shortages of workers and skills identified in Phase One of the SSI project will be addressed. This effort will seek to enhance the skills levels of workers in critical occupations in order to maximize the longevity and productivity of the traditional manufacturing and health care sectors of EGR 2. On the other hand, the Regional Consortium and WIB believe that there is an urgent need to translate those occupations and

skills into forms consistent with a 21st Century workforce capable of participating in emerging industries and emerging technologies within the traditional industries (e.g. multi-tasking CNC machines).

Therefore, the task of this project is to not only identify the root causes of the shortages of skills and workers, but also to address the causes of the unavoidable, though slow, decline of regional industries suggested by the foregoing data. Those causes include:

- The circular dynamic of regional leadership being unable to develop plans for modernizing the workforce in a way that would open up possibilities in occupations dealing with cutting-edge technology and processes;
- The associated inability of regional planners to attract manufacturers taking advantage of developments in biotechnology, nanotechnology, and geo-spatial technology; and
- The inability of the region to be attractive to the talent needed for such a workforce.

> "Policies to encourage faster growth in productivity cannot be pursued in isolation from general macroeconomic policies. What happens in the economy as a whole will have an important effect on productivity growth. The major determinants of productivity--the quality of the labor force, the accumulation of capital, and the pace of technological change--are strongly affected by the economic environment. For example, unemployment adversely affects the acquisition of skills through work experience and training, as well as the mobility of workers. Economic slack also undermines the incentive to invest in new plant and equipment, and to develop and adopt new technology. Inflation may also increase business uncertainty, thus diminishing innovation and investment. Hence, a more stable economic environment would in itself make a major contribution to productivity growth."
>
> *Congressional Budget Office, 1981*

As suggested by a search of relevant literature, there will always be a need for welders, CNC operators, and so forth. However, the ways in which the members of those occupations ply their trades will be very different in the 21st Century than they are now. Our task is to help current manufacturers and health care facilities continue to flourish, while simultaneously helping both employers and workers make a transition to a new and dynamic regional economy.

Manufacturing Skill Shortage Roots Go Deep

There are three primary shared causes for shortages in manufacturing occupations. These shared causes are low wages, a limited pipeline, and inadequate skills.

Why are average manufacturing and occupational wages lower in EGR 2 than in the state and nation?

- Because firms are not as productive in EGR 2 (see chart above);
  - Why are firms not as productive in EGR 2?
    - Because they are not using the newest technologies, practices, and approaches; they are more traditional, "old school" establishments.

      "Large differences in productivity across firms are closely linked to large differences in wages across workers…Our key empirical results are: (i) we find substantial differences in earnings per worker, output per worker and worker

mix across businesses within narrowly defined industries; (ii) these differences are highly persistent; (iii) these differences across businesses within the same industry remain even after controlling for other observable differences across businesses; (iv) these differences are highly correlated – that is, we observe high productivity workplaces have high earnings per worker and highly skilled workers."[5]

Why is there a limited pipeline into manufacturing?

- Because students and job/career seekers are not interested and place no value on the industry or the trades.
    - Why are people not interested in and not valuing the occupations?
        - Because of manufacturing's image. Historical images still preserved in old movies, cartoons, and TV programs about monotonous assembly line work, dark factories; current news stories about lay-offs, plant closures, etc.
        - Because parents and schools emphasize 4-year college degrees over the trades. The aspiration for many Americans and immigrants is that their children get an education higher than theirs; there is still "status" from having a college degree; the media often portrays school quality in terms of what percentage of graduates go on to college; educators are 4-year graduates themselves, and place value on it.

Why are there inadequate skills available?

- Varies by occupation, but because some programs are not available at all for students to enroll in, or students lack the ability to qualify for or succeed in them, or the content is insufficient.
    - Why are the programs unavailable, or too rigorous, or lacking in content?
        - Varies by occupation, but because some programs have never existed at all; others have been insensitive to the needs of the workplace; or the training is only *potentially* available, pending funds to create customized, on-site training; or students weren't well prepared in basic skills to begin with.

The root causes for manufacturing skill shortages thus lie in:

- **Traditional firm practices, approaches, and technologies**. The lower productivity described above is a result of a failure to invest in 21st Century practices. These include, but are not limited to, capital technology, lean manufacturing, waste control (in all its forms), consideration of productivity constraints (bottlenecks), and investment in a technically skilled workforce. As a consequence the EGR 2 workforce is characterized, for the most part, by modest or lower-level skills, and hence lower wages. Data documents that lower wages are a common issue affecting interest in, and retention in, the trades in EGR 2. This is our #1 ranked root cause for all manufacturing occupations.

  One 21st Century practice is to invest in workforce training because of the positive impact on worker productivity. Ivy Tech and IUSB contract training departments have the capability to develop and bring training right to the worksite. However, as one employer in a focus

[5] "Wages, Productivity, and the Dynamic Interaction of Business Workers;" Haltiwanger, Lane, Spletzer; April 28, 2000.

group put it, "I wouldn't think of it because it would detract from productivity." This reaffirms that management meets customer demands before considering any training. Management must increase their skill-building investment - whether it occurs during production hours or off hours - to maintain quality, quantity, and on time delivery, and thereby to remain competitive.

- **Training shortages – capacity, availability, and content.** Some occupations such as painters have no formal training programs available at all, and employers are less able to afford on-the-job training because of production pressures and increasing competition. Other programs, such as CNC, have formal training, but the output of the programs has been hindered by program changes. In some cases there are content issues; incumbent workers claim new hires are lacking in the skills that are needed for success. This will be the #2 ranked factor for each occupation.
- **Manufacturing's image** (cultural and media factors). Manufacturing's image is rooted in our culture. We have a culture that devalues trades and places excessive emphasis on 4-year degrees. The popular media don't help. In movies, television, and cartoons, manufacturing is historically represented as monotonous, repetitive low-skilled labor in dark, dirty factories. Newspaper and magazine articles focus on lay-offs, closures, and scandals, creating the impression that manufacturing employment is unstable and insecure. This will be the #3 ranked root cause for all occupations.

The chart below explores the impacts of root causes on the occupations. "Qualitative assessment" refers to the sensitivity of the projected future occupational and/or skill shortage to changes in the root cause. "Quantitative assessment" refers to the expected effect of changes to the shortage numbers if the root cause is altered, eliminated, or otherwise addressed. Each cause is ranked. The rank is based on the qualitative sensitivity and quantitative level of impact. All causes are interwoven with each other, so ascribing a quantitative number to a resolving a single cause would not be appropriate. Instead, we have indicated whether the resolution is likely to result in high, moderate, or low impact on the shortage.

Manufacturing Root Causes by Occupation

Occupation	Ranked Root Causes	Impact	Qualitative Assessment	Quantitative Assessment
All Targeted Manufacturing Occupations	1. Traditional practices, approaches, and technologies. This is the #1 ranked cause for all four occupations.	Lower productivity, as a result of failure to invest in 21st Century practices; resulting in workforce characterized by modest or lower level skills, and hence lower wages; resulting in fewer people wanting to enter or stay in the occupations.	High sensitivity.	High impact.

First line Supervisors	2. Lack of relational and communication skills	No training, coaching, or mentoring is provided to newly promoted supervisors, so they lack the skills needed for satisfaction and success. The pool of existing technicians who are promotable is difficult because the skills are not valued, taught, or practiced as part of the technical training curriculum.	High sensitivity.	Moderate impact.
CNC Machinists	2. Lack of training capacity. Training programs are insufficient in numbers as well as geography. Ivy Tech just changed to 2-year degree; had to virtually start over; current enrollment thus small; most growth in CNCs is in Warsaw area; but training programs are only in S. Bend, Elkhart, and small one in Plymouth; Ivy Tech continuing ed program in Warsaw has equipment but no where to put it. Future incumbent shortage: New CAD-CAM software is being developed. User must know the intricate codes and behaviors of new machines.	Too few CNC machinists in the pipeline.	High sensitivity. Training programs must be easily accessible for students to take advantage of them. Most CNC students are adults who are already working, so courses need to be close by and inexpensive.	High impact.
	2.A. Lack of foundation basic skills to be successful: math, computer, measuring devices. K-12 does not adequately ground *all* students in math and computer skills, mostly because they are not	Too few students and incumbents with the skills needed to be proficient.	Moderate sensitivity. Many students will not appreciate the value of such skills until they get into the workplace.	Moderate impact.

	taught in an applied setting for students who learn better that way. Training in measuring devices is limited to some career and tech ed programs, but with the emphasis on NCLB, students are not encouraged to participate and general industrial arts program requirements for all students have been eliminated.			
Welders	2. Lack of upward mobility training. Welding may be a stepping stone. Many of the welding students at Ivy Tech are actually planning to apply their skills in another trade.	Too many people leave welding.	Moderate sensitivity.	Moderate impact.
Painters	2. Lack of training opportunities. There are no training programs to prepare people to be painters of transportation equipment. This is an OJT occupation and supervisors are not available and able to train new painters. Training takes away from getting product out the door.	No qualified pool of workers for employers to select from.	High sensitivity.	High impact.
All Targeted Manufacturing Occupations	3. The image of manufacturing and the trades.	Manufacturing appears unstable and insecure, reducing interest in the industry. It also appears to be "drone work," so schools tend to recommend manufacturing careers to those who are not academically successful. The trades are not valued as much as 4-year academic programs.	High sensitivity.	Moderate impact.

Health Care Shortage Roots More Varied than Manufacturing

One shared cause for three of the four occupations is lack of sufficient numbers of people in training for these occupations, but the root cause behind that is varied. A shared cause for *all* the occupations is lower average wages in the region than elsewhere. Because of those wages, we are unable to attract graduates from other regions to EGR 2, and we risk losing our own limited graduates and incumbent workers to other cities and states. Health care is an industry in which getting more business (patients) doesn't necessarily make you more profitable.

As with manufacturing the chart below explores causes and impacts for health care occupations. "Qualitative assessment" refers to the sensitivity of the projected future occupational and/or skill shortage to changes in the root cause. "Quantitative assessment" refers to the expected effect of changes to the shortage numbers if the root cause is altered, eliminated, or otherwise addressed. Each cause is ranked. The rank is based on the qualitative sensitivity and quantitative level of impact. All causes are interwoven with each other, so ascribing a quantitative number to a resolving a single cause would not be appropriate. Instead, we have indicated whether the resolution is likely to result in high, moderate, or low impact on the shortage.

Some of the occupations share common causes, and those are described following the individual occupations. The first ranked cause is shown for the individual occupations; common causes occupy succeeding ranks.

Health Care Root Causes by Occupation

Occupation	Root Cause	Impact	Qualitative Assessment	Quantitative Assessment
RN	1. Insufficient Educational Capacity: Inadequate funding for nursing school faculty. Lack of qualified MSN-level instructors. Masters programs are costly and time consuming, and MSNs can make more money in practice than in teaching. Lack of enough supervised clinical sites. If faculty have to supervise students at clinical sites, then they are taken away from teaching and vice versa.	Waiting lists for programs and clinical experience and too few nurses graduating to meet the need.	High sensitivity.	High impact.
Respiratory Therapist	1. No training program available for enrollment in the region. Lack of funding for the program. Ivy Tech has an approved program that was ready to go two years ago, but cannot get funding for it.	If people from the region are unable to attend school while living in the region, the chances of them getting trained to fill local positions is limited.	High sensitivity.	High impact.
Medical Assistants and Medical Information/	1. Inadequate funding for training for career ladders, leaving workers in low wage occupations.	Even when people are trained for the occupation, they don't go to work as readily in hospitals because of the wages, and don't stay in the region or profession because of low wages.	High sensitivity.	High impact.

Coders				
Respiratory Therapists, Medical Assistants, and Coders	2. Lack of career awareness. The number of occupations that may be shared at the K-12 level are so numerous that small size occupations and those that are less glamorous simply get lost.	If people are unaware of a career, they are not likely to seek out training for it, thus liming numbers being trained and a skilled pool being available.	Moderate sensitivity.	Moderate impact.
RNs, Respiratory Therapists, Medical Assistants	2. Working Conditions in hospitals. Shortage creates higher patient loads, increased stress. Hospitals run on 24/7 schedule, which is not attractive to many.	When people feel overworked and they have to give up holidays and family events, or work odd shifts they are less likely to stay and more likely to reduce hours worked.	Moderate sensitivity.	High impact
Medical Assistants, and Coders	3. Societal devaluing of lower level health care occupations.	Young people are not encouraged to enter these occupations.	Moderate sensitivity.	Moderate impact.

Regional Participation in Root Cause Determination is Broad

Coalition Involvement

All coalition partners had opportunity for input into the root cause analysis. A meeting of the coalition was held December 20 to present the findings, seek the members' additional insights, and ensure consensus on root causes, sensitivities, and impacts. The coalition members represent every county in EGR 2, and include representatives of the targeted subsectors. The list of coalition members was included in the original SSI application.

Regional Coverage

The identification and analysis of root causes was conducted on a regional basis and was not the result of separate self-interested activities by individual WIBs and/or their component jurisdictions, but was instead conducted on a regional basis. A member of the North Central Indiana WIB and other Fulton County representatives sit on the EGR 2 consortium to ensure the project is truly regional, and not just in the interests of the Northern Indiana board.

Primary research into root causes was conducted across the entire region:

- Nine focus groups were held in advanced manufacturing. There was at least 1 focus group held in each county of EGR 2.
- A regional health care summit was held that involved health care providers from across the region.
- Incumbent workers were surveyed in every county. There were 1078 responses from manufacturing workers (a 30% response rate) and 396 from health care (a 28.5% response rate).
- An e-mail survey was conducted with hospital HR directors from across the region, and 4 responded; a similar survey in manufacturing yielded 12 responses.
- Another e-mail survey with postsecondary health programs provided 6 responses.

Additionally, secondary research was conducted on-line to obtain information about secondary school and postsecondary programs related to the targeted occupations throughout the region.

Industry Partner Involvement

Industry partners who participated in the primary research included:

Health Care

- Memorial Hospital
- Kosciusko Community Hospital
- Woodlawn Hospital
- Bremen Community Hospital
- Goshen Health System
- St. Joseph Regional Medical Center
- Elkhart General Hospital
- Long Term Care Organizations

Manufacturing

- Polygon
- Plastics Solutions
- NIBCO
- Nyloncraft
- Hoosier Tank & Mfg.
- Lock Joint Tube
- Bull Moose Tube
- Delta Tools Mfg.
- Daman Products Co.
- Allied Specialty Precision
- Curtis Products
- General Sheet Metal Works
- Dutchmen Mfg.
- Phillips Products
- Ventline
- Textron Fastening Systems
- Utilimaster
- Paragon Medical
- Master Metal Engineering
- Plymouth Foundry
- Ferro Coatings Corp.
- Dexter Axle
- Indalex inc.
- Biomet
- Dalton Corp.
- AM General
- Syscon Intl.
- AE Techron
- Amerimax Laminated Products
- Zimmer
- Whitley Products
- Magnetech Industrial Services
- Federal-Mogul
- Modern Materials
- Gaerte Engines
- Qynergy

All employers that participate are added to the regional consortium. The above were therefore invited to the December 20 event to discuss the findings and provide their endorsement.

As solutions are developed, the consortium will keep in mind the kind of interventions and investments that are likely to have the greatest return to the regional economy. "Ultimately, state and local economic development policy makers should consider **shifting their emphasis from increasing the *quantity* of certain types of workers, toward embracing human capital development as a longer-term goal.** Paired with amenity strategies for younger workers and more workplace flexibility for older workers, policies to raise the stock of knowledge in a region can 'split the difference' between demand-side and supply-side labor market interventions."[6]

[6] "Labor Supply Pressures and the 'Brain Drain;" Signs from the Census 2000 from the Center on Urban and Metropolitan Policy, January, 2004

Section 1: Root Causes and Their Impacts

Manufacturing Shortages Due to Skills, Wills, and Capacities

Skill shortages in manufacturing occupations have both shared and unique causes. The table below outlines the causes for shortages in each occupation in terms of skill deficits, employer-based factors, pipeline issues, leakage, and wages and benefits. The process by which these causes were identified is explained in the next section on methodology.

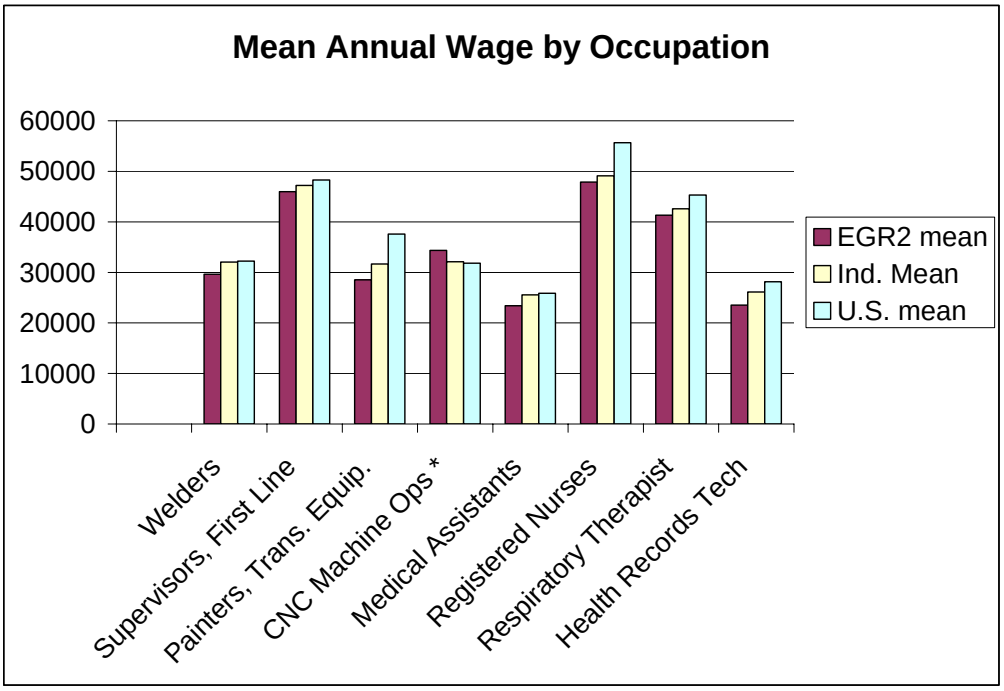
First Line Supervisors	CNC Operators	Welders	Painters
Skills Gap: Relational and communication skills Bilingual skills	Skills Gap: Inadequate math and computer skills at secondary level. Inability to handle the tight tolerances and dimensions needed for medical precision parts. Soft Skills, Work Ethic	Skills Gap: Soft Skills, Work Ethic	Skills Gap: Soft Skills, Work Ethic
Employer issues: Promote good technicians regardless of communication skills. Do not value relational and communication skills. Do not provide training, mentoring, coaching of recent promotees.	Employer issues: Employers mostly recruit through traditional use of want ads, company websites, employee referrals. Little use of WorkOnes, area vocational schools. Location: Warsaw too far to draw workforce from South Bend.	Employer issues: Employers do not provide innovative ways for welders to move up a ladder; e.g. from line welder to welding engineer (O*net job classification), to welding inspector.	Employer issues: Employers reluctant to pull experts away from work to train new workers' - employers don't value this kind of investment in training. Employer attitudes: Employers want experienced people, but people have to get experience *somewhere.* Lack of career ladders to higher level, better paying work.
Education and Training Capacity Issues: None Identified	Education and Training Capacity Issues: Ivy Tech just changed to 2-year degree; had to virtually start over; current enrollment thus small.	Education and Training Capacity Issues: None identified.	Education and Training Capacity Issues: This is an OJT type occupation, and supervisors available and able to train new painters are limited.

	Most growth in CNCs is in Warsaw area; but training programs are only in S. Bend, Elkhart, and small one in Plymouth. Ivy Tech continuing ed program in Warsaw has equipment but no where to put it.		Training takes away from getting product out the door.
Pipeline Issues: K-16 education provides no formal communication and relational skills training nor opportunities to practice them in a supervisory setting. Incumbent supervisors mentioned people skills as something they could have benefited learning in K-12. Little value placed on the trades; supervisors start out in the trade themselves, so shortage in manufacturing affects supervisors as well.	Pipeline Issues: General image of manufacturing; devaluing of trades by schools, parents, community. Media bias against manufacturing. No Junior Achievement Lack of career awareness. Primary source of information about occupation was family and friends, previous work in mfg, not school. Education funding cuts and effects of NCLB: No industrial arts. CNCs in training think students drop out mainly due to difficulty of program. Skills they *didn't* learn in K-12 include reading drawings, prints; using measuring instruments.	Pipeline Issues: General image of manufacturing; devaluing of trades by schools, parents, community. Media bias against manufacturing. No Junior Achievement Perception of welding as dirty and dangerous. Primary source of information about occupation was family and friends, previous work in mfg, not school (although welders more likely than others to identify school as source of awareness). Education funding cuts and effects of NCLB: No industrial arts.	Pipeline Issues: General image of manufacturing; devaluing of trades by schools, parents, community Media bias against manufacturing. No Junior Achievement Education funding cuts and effects of NCLB: No industrial arts. Skills they would have like to have learned in K-12 schools included computer skills, measuring instruments.
Leakage: In general: people leave to pursue higher average wages in other regions (and warmer climate).	Leakage: In general: people leave to pursue higher average wages in other regions (and warmer climate). Personal issues – stresses in home life	Leakage: In general: people leave to pursue higher average wages in other regions (and warmer climate). Personal issues – stresses in home life	Leakage: In general: people leave to pursue higher average wages in other regions (and warmer climate). Personal issues – stresses in home life

	limit ability to pursue educational opportunities.	limit ability to pursue educational opportunities.	limit ability to pursue educational opportunities.
Wages and Benefits: Average wages in manufacturing in EGR 2 are lower than the state average for manufacturing.	Wages and Benefits: Lower average wages in the region than rest of state. Starting pay incommensurate with length of study to get certified.	Wages and Benefits: Lower average wages for the region as a whole compared to the state and nation (although welders actually earn a higher average wage than state and national in Elkhart)	Wages and Benefits: Average wages in manufacturing in EGR 2 are lower than the state average for manufacturing.

It becomes obvious that there are shared causes, including lower wages, a limited pipeline into manufacturing, and inadequate skills among those who are interested in the occupations. The chart below depicts the scope of lower wages, which are lower in EGR 2 for every occupation except CNC machinists, and the average for that occupation is skewed by firms in just one city of the region. The picture for CNC is more clearly demonstrated by the table following the graph for machinist mean wages (CNC operators are machinists), which takes the higher paying city (Warsaw) out of the equation.

EGR 2, State, and National Mean Annual Wages for Targeted Occupations



Source: Bureau of Labor Statistics: www.bls.gov

2004 Wages for Machinists		
	Average Hourly Wage	**Average Annual Wage**
Gary	$19.44	$40,430
Indianapolis	$17.90	$37,230
Indiana	$17.25	$35,880
National	$16.73	$34,790
Evansville	$16.05	$33,380
Bloomington	$15.97	$33,220
Fort Wayne	$15.76	$32,770
South Bend	$15.47	$32,180
Muncie	$15.34	$31,920
Terre Haute	$15.17	$31,540
Elkhart	$14.13	$29,400
Source: www.learnmoreindiana.org		

Just as we drilled deeper to identify shortage occupations within manufacturing in the first phase of this project, we now need to drill deeper into the factors behind the root causes by occupation within manufacturing. Let's get to the "root" cause for each of these shared causes.

Why are average manufacturing and occupational wages lower in EGR 2 than in the state and nation?

- Because firms are not as productive in EGR 2 (see data in Executive Summary);
  - Why are firms not as productive in EGR 2?
    - Because they are not using the newest technologies, practices, and approaches; they are more traditional, "old school" establishments.

      "Large differences in productivity across firms are closely linked to large differences in wages across workers…Our key empirical results are: (i) we find substantial differences in earnings per worker, output per worker and worker mix across businesses within narrowly defined industries; (ii) these differences are highly persistent; (iii) these differences across businesses within the same industry remain even after controlling for other observable differences across businesses; (iv) these differences are highly correlated – that is, we observe high productivity workplaces have high earnings per worker and highly skilled workers."[7]

[7] "Wages, Productivity, and the Dynamic Interaction of Business Workers;" Haltiwanger, Lane, Spletzer; April 28, 2000.

Why is there a limited pipeline into manufacturing?

- Because students and job/career seekers are not interested and place little value on the industry or the trades.
    - Why are people not interested and not valuing the occupations?
        - Because of manufacturing's image. Historical images still preserved in old movies, cartoons, and TV programs about monotonous assembly line work, dark factories; current news stories about lay-offs, plant closures, etc.
        - Because parents and schools emphasize 4-year college degrees over the trades. The aspiration for many Americans and immigrants is that their children get an education higher than theirs; there is still "status" from having a college degree; the media often portrays school quality in terms of what percentage of graduates go on to college; educators are 4-year graduates themselves, and place value on it.

Why are there inadequate skills available?

- Varies by occupation, but because programs are not available at all, or students lack the ability to qualify for or succeed in them, or the content is insufficient.
    - Why are the programs unavailable, or too rigorous, or lacking in content?
    - Varies by occupation, but because some programs have never existed at all; others have been insensitive to the needs of the workplace; or the training is only *potentially* available, pending funds to create customized, on-site training; or students weren't well prepared in basic skills to begin with.

The root causes for manufacturing skill shortages thus lie in:

- **Traditional firm practices, approaches, and technologies**. The lower productivity described above is a result of a failure to invest in 21st Century practices. These include, but are not limited to, capital technology, lean manufacturing, waste control (in all its forms), consideration of productivity constraints (bottlenecks), and investment in a technically skilled workforce. As a consequence the EGR 2 workforce is characterized, for the most part, by modest or lower-level skills, and hence lower wages. Data documents that lower wages are a common issue affecting interest in, and retention in, the trades. This is our #1 ranked root cause for all manufacturing occupations.
- **Training shortages – capacity, availability, and content.** Some occupations such as painters have no formal training programs available at all, and employers are less able to afford on-the-job training because of production pressures and increasing competition. Other programs, such as CNC, have formal training, but the output of the programs has been hindered by program changes. In some cases there are content issues; incumbent workers claim new hires are lacking in the skills that are needed for success. This will be the #2 ranked factor for each occupation.

One 21st Century practice is to invest in workforce training because of the positive impact on worker productivity. Ivy Tech and IUSB contract training departments have the capability to develop and bring training right to the worksite. However, as one employer in a focus group put it, "I wouldn't think of it because it would detract from productivity." This reaffirms that management meets customer demands before considering any training. Management must increase their skill-building investment - whether it occurs during production hours or off hours - to maintain quality, quantity, and on time delivery, and thereby to remain competitive.

An interesting discussion of the reasons for this may be found in "What We Know About Employer-Provided Training: A Review of Literature;" John H. Bishop, New York State School of Industrial and Labor Relations, Cornell University, Working Paper #96-09; July, 1996. (Excerpts can be found in the Appendix, pp. 87-91.)

http://www.ilr.cornell.edu/depts/cahrs/PDFs/WorkingPapers/WP96-09.pdf

- **Manufacturing's image** (cultural and media factors). Manufacturing's image is rooted in our culture. We have a culture that devalues trades and places excessive emphasis on 4-year degrees. The popular media don't help. In movies, television, and cartoons, manufacturing is historically represented as monotonous, repetitive low-skilled labor in dark, dirty factories. Newspaper and magazine articles focus on lay-offs, closures, and scandals, creating the impression that manufacturing employment is unstable and insecure. This will be the #3 ranked root cause for all occupations.

The chart below explores the impacts of root causes on the occupations. "Qualitative assessment" refers to the sensitivity of the projected future occupational and/or skill shortage to changes in the root cause. "Quantitative assessment" refers to the expected effect of changes to the shortage numbers if the root cause is altered, eliminated, or otherwise addressed. Each cause is ranked. The rank is based on the qualitative sensitivity and quantitative level of impact. All causes are interwoven with each other, so ascribing a quantitative number to a resolving a single cause would not be appropriate. Instead, we have indicated whether the resolution is likely to result in high, moderate, or low impact on the shortage.

Manufacturing Root Causes by Occupation

Occupation	Ranked Root Causes	Impact	Qualitative Assessment	Quantitative Assessment
All Targeted Manufacturing Occupations	1. Traditional practices, approaches, and technologies. This is the #1 ranked cause for all four occupations.	Lower productivity, as a result of failure to invest in 21st Century practices; resulting in workforce characterized by modest or lower level skills, and hence lower wages; resulting in fewer people wanting to enter or stay in the occupations.	High sensitivity.	High impact.
First line Supervisors	2. Lack of relational and communication skills	No training, coaching, or mentoring is provided to newly promoted supervisors, so they lack the skills needed for satisfaction and success. The pool of existing technicians who are promotable is difficult because the skills are not valued, taught, or practiced as part of the technical training curriculum.	High sensitivity.	Moderate impact.

CNC Machinists	2. Lack of training capacity. Training programs are insufficient in numbers as well as geography. Ivy Tech just changed to 2-year degree; had to virtually start over; current enrollment thus small; most growth in CNCs is in Warsaw area; but training programs are only in S. Bend, Elkhart, and small one in Plymouth; Ivy Tech continuing ed program in Warsaw has equipment but no where to put it. Future incumbent shortage: New CAD-CAM software is being developed. User must know the intricate codes and behaviors of new machines.	Too few CNC machinists in the pipeline.	High sensitivity. Training programs must be easily accessible for students to take advantage of them. Most CNC students are adults who are already working, so courses need to be close by and inexpensive.	High impact.
	2.A. Lack of foundation basic skills to be successful: math, computer, measuring devices. K-12 does not adequately ground *all* students in math and computer skills, mostly because they are not taught in an applied setting for students who learn better that way. Training in measuring devices is limited to some career and tech ed programs, but with the emphasis on NCLB, students are not encouraged to participate and general industrial arts program requirements for all students have been eliminated.	Too few students and incumbents with the skills needed to be proficient.	Moderate sensitivity. Many students will not appreciate the value of such skills until they get into the workplace.	Moderate impact.
Welders	2. Lack of upward mobility training. Welding may be a stepping stone. Many of the welding students at Ivy Tech are actually planning to apply	Too many people leave welding.	Moderate sensitivity.	Moderate impact.

	their skills in another trade.			
Painters	2. Lack of training opportunities. There are no training programs to prepare people to be painters of transportation equipment. This is an OJT occupation and supervisors are not available and able to train new painters. Training takes away from getting product out the door.	No qualified pool of workers for employers to select from.	High sensitivity.	High impact.
All Targeted Manufacturing Occupations	3. The image of manufacturing and the trades.	Manufacturing appears unstable and insecure, reducing interest in the industry. It also appears to be "drone work," so schools tend to recommend manufacturing careers to those who are not academically successful. The trades are not valued as much as 4-year academic programs.	High sensitivity.	Moderate impact.

Health Care Shortages Due to Capacity, Resources, Wages and Lack of Awareness/Interest

Skill shortages in health care occupations have more varied causes than are found in manufacturing. The table below outlines the causes for shortages in each occupation in terms of skill deficits, employer-based factors, pipeline issues, leakage, and wages and benefits. Again, the process by which these causes were identified is explained in the next section on methodology.

RNs	Respiratory Therapists	Medical Assistants	Medical Information/Coders
Skills Gap: Not identified as an issue.	Skills Gap: Not identified as an issue.	Skills Gap: Not identified as an issue.	Skills Gap: Not identified as an issue.
Employer issues: Shift work, 24/7 operations in hospitals. Stress/overtime due to shortages. Incumbent nurses reluctant to mentor students, assist with clinicals. Nurses are having to do more administrative duties instead of being the care providers they wanted to be. Tuition reimbursement policies are after the fact; students don't always have up-front money.	Employer issues: Shift work, 24/7 operations in hospitals. Stress/overtime due to shortages. Employers reluctant to allow in-house training; takes RT away from other duties.	Employer issues: Shift work, 24/7 operations in hospitals.	Employer issues: None identified.
Education and Training Capacity Issues: Lack of clinical sites. Lack of nursing faculty; requires Masters; insufficient pay compared to clinical work; no logical track to become instructor; schools can not have more part time instructors than full time; more nurses willing to teach, but only want to do it part time.	Education and Training Capacity Issues: No funded programs in EGR 2. Nearest program is in Michigan City. The Michigan City program is really negligible because it requires South Bend students to commute twice a week. The only integrated programs in this part of the state are in Gary and Fort Wayne.	Education and Training Capacity Issues: None identified.	Education and Training Capacity Issues: Training programs unaware of the needs coders have. Only one school program locally – Davenport. Program *just* began. Ivy tech getting ready for on-line program

Waiting lists for programs. WIA operator refuses to fund RNs (although it is permissible). Hospitals can train RNs and pay employees for class time, and "growing your own" is successful, but funding cuts eliminated program at Memorial. Nursing instructors not knowledgeable in specialized areas they must teach; e.g., psychology. Tuition too high. Training sites not close to rural areas.			
Pipeline Issues: Stereotyped as female occupation. Rigorous academic requirements; fear of academic rigor; basic skills and science skills too poor. No glamour in medical field.	Pipeline Issues: Lack of awareness of occupation. Negative view of health care careers. Emphasis on 4-year degrees rather than technical degrees like RT.	Pipeline Issues: Lack of awareness of occupation. Negative view of health care careers. Emphasis on 4-year degrees.	Pipeline Issues: Lack of awareness of occupation. Negative view of health care careers. Emphasis on 4-year degrees.
Leakage: People leave to get better hours/shifts, or a specialty they are interested in elsewhere.	Leakage: None identified.	Leakage: None identified.	Leakage: None identified.
Wages and Benefits: Nurses can make more money outside of hospital employment. Wages lower in South Bend than other cities in the state.	Wages and Benefits: Wages lower than in other regions, other occupations.	Wages and Benefits: Wages lower than in other regions, other occupations.	Wages and Benefits: Wages lower than in other regions.

One shared cause for three of the four occupations is lack of sufficient numbers of people in training for these occupations, but the root cause behind that is varied. A shared cause for *all* the occupations is lower average wages in the region than elsewhere. Because of those wages, we are unable to attract graduates from other regions to EGR 2, and we risk losing our own limited graduates and incumbent workers to other cities and states. Health care is an industry in which getting more business (patients) doesn't necessarily make you more profitable. Revenue is impacted by factors such as Medicaid/Medicare reimbursement rates. Raising awareness of wage disparities through this report is one step toward addressing the issue. The charts below demonstrate the region's lack of competitiveness. Note in particular where the region stands in terms of state and national wages, since people in these occupations are in demand across the country and can make a living wherever they want.

Registered Nurse Wage Comparisons

2004 Wages for Registered Nurses		
	Average Hourly Wage	**Average Annual Wage**
National	**$26.06**	**$54,210**
Elkhart	$25.97	$54,030
Indianapolis	$24.24	$50,420
Indiana	**$22.55**	**$46,900**
Kokomo	$22.46	$46,720
Fort Wayne	$22.02	$45,790
South Bend	$21.61	$44,950
Terre Haute	$21.14	$43,970
Gary	$21.12	$43,930
Lafayette	$20.80	$43,250
Evansville	$20.25	$42,120
Muncie	$20.02	$41,650
Source: www.learnmoreindiana.org		

Respiratory Therapist Wage Comparisons

2004 Wages for Respiratory Therapists		
	Average Hourly Wage	**Average Annual Wage**
National	**$21.24**	**$44,180**
Gary	$20.89	$43,450
Fort Wayne	$20.55	$42,730
Terre Haute	$20.53	$42,700
Indiana	**$19.95**	**$41,510**

Indianapolis	$19.44	$40,440
Muncie	$19.14	$39,820
Evansville	$19.00	$39,510
Elkhart	$18.96	$39,430
Source: www.learnmoreindiana.org		

Medical Assistant Wage Comparisons

2004 Wages for Medical Assistants		
	Average Hourly Wage	**Average Annual Wage**
Kokomo	$13.38	$27,830
Indianapolis	$12.55	$26,100
Bloomington	$12.31	$25,600
National	**$12.21**	**$25,400**
Indiana	**$12.06**	**$25,080**
Gary	$11.74	$24,410
Terre Haute	$11.60	$24,130
Lafayette	$11.50	$23,910
South Bend	$11.49	$23,910
Evansville	$11.29	$23,490
Elkhart	$11.26	$23,420
Fort Wayne	$11.21	$23,310
Muncie	$10.39	$21,600
Source: www.learnmoreindiana.org		

Health Information/Coder Wage Comparisons

2004 Wages for Health Information Technicians		
	Average Hourly Wage	**Average Annual Wage**
National	**$13.30**	**$27,660**
Terre Haute	$13.12	$27,280
Indianapolis	$12.99	$27,010
Fort Wayne	$12.88	$26,790
Indiana	**$12.10**	**$25,170**
Elkhart	$12.03	$25,020
South Bend	$12.02	$25,000
Kokomo	$11.54	$24,010
Gary	$11.42	$23,760
Muncie	$10.85	$22,570

Evansville	$10.42	$21,670
Lafayette	$10.36	$21,550
Source: www.learnmoreindiana.org		

As with manufacturing the chart below explores causes and impacts for health care occupations. "Qualitative assessment" refers to the sensitivity of the projected future occupational and/or skill shortage to changes in the root cause. "Quantitative assessment" refers to the expected effect of changes to the shortage numbers if the root cause is altered, eliminated, or otherwise addressed. Each cause is ranked. The rank is based on the qualitative sensitivity and quantitative level of impact. All causes are interwoven with each other, so ascribing a quantitative number to a resolving a single cause would not be appropriate. Instead, we have indicated whether the resolution is likely to result in high, moderate, or low impact on the shortage.

Some of the occupations share common causes, and those are described following the individual occupations. The first ranked cause is shown for the individual occupations; common causes occupy succeeding ranks.

Occupation	Root Cause	Impact	Qualitative Assessment	Quantitative Assessment
RN	1. Insufficient Educational Capacity: Inadequate funding for nursing school faculty. Lack of qualified MSN-level instructors. Masters programs are costly and time consuming, and MSNs can make more money in practice than in teaching. Lack of enough supervised clinical sites. If faculty have to supervise students at clinical sites, then they are taken away from teaching and vice versa.	Waiting lists for programs and clinical experience and too few nurses graduating to meet the need.	High sensitivity.	High impact.
Respiratory Therapist	1. No training program available for enrollment in the region. Lack of funding for the program. Ivy Tech has an approved program that was ready to go two years ago, but cannot get funding for it.	If people from the region are unable to attend school while living in the region, the chances of them getting trained to fill local positions is limited.	High sensitivity.	High impact.
Medical Assistants and Medical Information/ Coders	1. Inadequate funding for training for career ladders, leaving workers in low wage occupations.	Even when people are trained for the occupation, they don't go to work as readily in hospitals because of the wages, and don't stay in the region or profession because of low wages.	High sensitivity.	High impact.
Respiratory Therapists, Medical	2. Lack of career awareness. The number of occupations that may be shared at the K-12 level are so	If people are unaware of a career, they are not likely to seek out training for it, thus liming numbers being trained and a skilled pool being	Moderate sensitivity.	Moderate impact.

Assistants, and Coders	numerous that small size occupations and those that are less glamorous simply get lost.	available.		
RNs, Respiratory Therapists, Medical Assistants	2. Working Conditions in hospitals. Shortage creates higher patient loads, increased stress. Hospitals run on 24/7 schedule, which is not attractive to many.	When people feel overworked and they have to give up holidays and family events, or work odd shifts they are less likely to stay and more likely to reduce hours worked.	Moderate sensitivity.	High impact
Medical Assistants, and Coders	3. Societal devaluing of lower level health care occupations.	Young people are not encouraged to enter these occupations.	Moderate sensitivity.	Moderate impact.

Section 2: Methodology

Methodology and Web-Based Workshop Training

The Vice President of Strategic Research and Development and the Research Director participated in web-based training offered through DWD. The lessons learned in training and the directions in the guidebook were employed in the development of this report.

1. **Step 1: Mine the Secondary Literature**

   The methodology began with mining existing literature to determine the causes found by other researchers around the country. EGR 2's occupational and skill shortages are not unique, and much is to be gained by looking at the findings of other regional and national researchers. The table below summarizes the findings:

Summary of Secondary Literature Research for Root Causes

Occupation	Causes
All Occupations in General	➢ Indiana lags behind the best states in preparing students for postsecondary education. ➢ Indiana gets a "D" in affordability of postsecondary education. ➢ 2 in 5 Indiana high school graduates feel unprepared for further education. ➢ Generation Y has different expectations, priorities, and work styles than previous generations, and workplaces don't know how to adapt to compete for the best and brightest.
Manufacturing in General	➢ Manufacturing has a negative image problem. ♦ Negative image was found among students, parents, teachers, and even manufacturing workers and executives. ♦ Images are still tied to routine, repetitive assembly line work in dirty factories. ♦ Negative images are reinforced by media images of the industry. Most prominent stories are in the context of lay-offs, off-shoring, accounting scandals, pollution, plan closures, workplace violence and declining employment. ➢ The education and training system does not understand or promote careers in manufacturing. ♦ There is a general lack of awareness of manufacturing careers. ♦ Few link manufacturing careers to high technology or innovation. ♦ K-12 schools and their communities push 4-year postsecondary education as the real "success." ♦ Career and Technical Education programs are declining.

	➢ Increased technology requires higher skill levels than before. ➢ Public policies do not support a robust manufacturing industry (e.g., No Child Left Behind has resulted emphasis on academics to the detriment of vocational training). ➢ Aging workforce; retirements will cause loss of skill base. ➢ Industry reliance on old-school methods and talents. ➢ Cutbacks on employer apprenticeships. ➢ Employers have not visited schools to raise consciousness about manufacturing. ➢ Traditional firms have failed to effectively engage non-traditional populations, including minorities, women, and individuals with disabilities.
First line supervisors	Shares the same issues with manufacturing in general, plus: ➢ Supervisors are usually promoted from within, based on their strong technical knowledge and skills. Supervision requires a different set of skills, and those who are technical proficient do not necessarily posses the aptitudes and abilities for supervision without training, practice, and mentoring.
CNC Operators, Metal and Plastic	In addition to the having the same issues as above: ➢ The nature of training for the position has changed. It used to be taught primarily on the job, but companies aren't training younger workers themselves anymore and older workers are retiring.
Welders	➢ Shortage is international, so competition for workers is stiff. ➢ Image problem for welding is even worse than for manufacturing in general. It is perceived as not only dark and dirty, but also dangerous. ➢ Welding programs are being phased out of high schools. ➢ Education and training system is not aware of career ladders that can lead welders to maintenance engineering, programming, instructing, robotics technicians and inspectors. ➢ Automation is going to increase the need for related positions, such as welding machine operators. ➢ Thousands of welders are anticipated to be retiring in 2008 ➢ Welding can be very physically demanding. Hours can be long and sporadic. Some jobs require frequent travel. ➢ Despite demand, wages and benefits have decreased in last 20 years. ➢ Management doesn't often respect or value welders. ➢ Lack of process control experience among welders and welding decision makers. ➢ University educators and supervisors know little about MIG process controls

Painters of Transportation Equipment	Shares the same issues with manufacturing in general.
Health Care in General	➢ Poor media perception of health care occupations. There is no "glamour" in medicine. ➢ Shift/holiday/weekend work required in hospitals. ➢ Increased career opportunities for women, who have traditionally been the backbone of the health care workforce. ➢ Changing perceptions of youth toward health careers. Since 1999, Junior Achievement (JA) has conducted four Interprise Polls™ profiling teenagers' career interests. In the preceding three years, teens named "doctor" as their ideal career choice. In 2002, however, "businessperson" topped the list by a narrow margin, chosen by 10.4 percent of the participating youth. No health careers made the top ten, but nurse came in at #13, chosen by only 2.2 percent of the respondents. ➢ Changing demographics. Minorities have historically been under-represented in health care careers, particularly nursing, but minorities are increasing as a share of the population.
Registered Nurse	➢ Restricted nursing program enrollments: U.S. nursing schools turned away 32,797 qualified applicants from BSN programs in 2004 due to lack of nursing faculty; clinical sites, classroom space, clinical preceptors, and budget constraints. Three quarters indicate faculty shortage as primary reason. ➢ The shortage of nursing faculty is a national problem. ➢ The percentage of qualified applicants turned away by associate degree programs was higher than that of bachelor programs. ➢ Insufficient supply of teaching MSNs; hospitals pay them more than postsecondary schools are able to. ➢ Not appealing to males; considered a female occupation. Many males who do complete nursing programs do not go into nursing and they leave the occupation at a greater rate than women. ➢ Reimbursement rates from Medicare and Medicaid reduce ability to pay competitive wages and benefits. ➢ Nurses are increasingly facing deteriorating working conditions at the facilities in which they work. ➢ 88% of nurses report that health and safety concerns influence their decision to remain in nursing (back injuries, needle sticks, physical assaults) ➢ More than 2/3rds of nurses report having to work some type of mandatory overtime every month. ➢ Nursing shortages have led to increased stress and burnout for those who are in the field. ➢ Aging population and insurance requirements that push people out of hospitals faster mean that hospitalized patients today are

	sicker and have more complex conditions than they did in the past, increasing the stress and burnout among nurses. ➢ Nursing population is aging rapidly. 40% of all RNs will be older than age 50 by the year 2010.
Respiratory Therapists	➢ Respiratory therapists report low job satisfaction, low morale, and feeling that conditions are getting worse rather than better. ➢ As with RNs, a general shortage has contributed to increased patient loads, stress, and burnout. ➢ 73% report that their patients are sicker and need more care than in the past, again contributing to stress.
Medical Assistants	➢ Medical assistants are increasingly being called on to handle tasks that were previously performed by nurses or even doctors. They are a "lower cost alternative;" shortages in other health care occupations have increased the demand for medical assistants. ➢ Medical assisting is not as prestigious as many other health care occupations.
Medical Records/Coders	➢ Career awareness is major issue. General lack of knowledge that the career exists.

Secondary Resources Used in Literature Search

Occupations in General	
"2 in 5 High School Graduates Feel Unprepared;" Achieve, Inc, posted February 8, 2005 "Measuring Up 2004; The State Report Card on Higher Education;" The National Center for Public Policy and Higher Education; 2004 http://www.generationwhy.com/	
Manufacturing	**Health Care**
"2005 Skills Gap Report – A Survey of the American Manufacturing Workforce;" The Manufacturing Institute, 2005 "Feeling the Effects of the Welder Shortage;" Practical Welding Today, posted 11/21/05 "Goodrich Aerostructures Meets Demand for CNC Operators with In-House Machinist Training Program;" FOCUS: Newsletter of the Centers for Applied Competitive Technologies, Vol. 1, No. 3 "Welders Worry Trade's Spark is Dying Out;" Milwaukee Journal Sentinel, November 16, 2005 Welding Forges into the Future;" survey responses, American Welding Society, 1995-2005 "In the Welding Land of Myth;" www.weldreality.com	AHCA/NCAL Rural Initiative Survey preliminary results "American Nurses Association Facts on the Nursing Shortage; "www.nursingworld.org , March 2005 "Nursing Shortage;" American Association of Colleges of Nursing, October, 2005 "Nursing Training Shifts Focus to Faculty Scarcity, Development;" Employment & Training Reporter, 11-28-05 "House Lawmakers Look into Nursing Faculty Shortage," Employment and Training Reporter, December 12, 2005 Statewide Survey of Nursing Students and Faculty Compilation Reported January, 2005; Indiana

"Coming up Short;" Ward's Auto World, October 1, 2005 Critical Skill Shortage Report; Chicago Metropolitan Region, April, 2004 "Tackling the Skills Shortage:" Maintenance Technology, 2004 "Mending Manufacturing;" Economic Policy Institute Briefing Paper, http://epinet.org "The Facts About Modern Manufacturing," 6th Edition; The Manufacturing Institute "Keeping American Competitive: How a Talent Shortage Threatens U.S. Manufacturing;" National Association of Manufacturers & The Manufacturing Institute	Nursing Workforce Development Coalition Health Care Root Causes Report, Central Illinois Economic Development Region, July, 2004 "Health Care's Human Crisis: the American Nursing Shortage;" Robert Wood Johnson Foundation, April 2002. "Empty Hallways: The Hidden Shortage of Healthcare Workers;" AFT Healthcare "Workforce Shortage Mandates Change…Now;" WMJ, 2003, Volume 102, No. 8 Career Prospects in Virginia- Medical Assistants, http://www3.ccps.virginia.edu/career_prospects/briefs/K-O/MedicalAssistants.shtml The Center for Health Workforce Development Tennessee http://www.healthworkforce.org "Health Professionals Share Their Candid (and Mixed) Feelings about the Field;" Workforce Management, August 9, 2005

2. Step 2: Research Secondary Data

Potential root causes were sought by reviewing data for Indiana and EGR 2. We were interested in general business, education, workforce, and economic environment issues. "Competing for Opportunity: The Northern Indiana State of the Workforce Report, 2005" and "Building the Workforce for the 21st Century," the 2002 Northern Indiana State of the Workforce Report outlined the following findings:

- WorkKeys assessments for 17,000 individuals across the region were compared against work profiling results in several key industries. The analyses revealed that nearly half lack the *applied math* skills needed for proficiency in machining; over half lack the *reading for information* skills needed for proficiency in health care and automotive careers; the vast majority lack the *locating information* skills required for proficiency in virtually every occupation and industry profiled.
- Northern Indiana is increasingly diverse racially and ethnically, which stresses the skills of frontline supervisors in managing human development and retention.
- The manufacturing base tends to use traditional, "old school" practices which inhibit movement to high performance workplaces.
- The pursuit of postsecondary education has declined in the region.
- The rate of participation in secondary vocational education is very low in Indiana to begin with (3.6%) and many schools in EGR 2 fall below the state average.

- The "work ethic" of the younger generation is cited as a serious concern by the region's employers.
- Drugs and workplace violence pose growing concerns.
- Manufacturing jobs pay less well in EGR 2 than the state and national averages.

3. **Step 3: Collect Primary Data**

   Primary data was collected through:

- Nine focus groups were conducted with employers from the targeted manufacturing subsectors from throughout the region. One focus group was held in each county, ensuring involvement of all industry partners and full geographic coverage.
- One health summit was held, attended by health care providers from across the region, again ensuring involvement of industry partners and full geographic coverage. The names of focus group attendees are in the appendix.
- Interviews were conducted with key manufacturing and health care providers.
- Surveys were conducted with:
  - Incumbent workers in manufacturing and health care
  - Secondary schools
  - Post-secondary schools
  - Human resources directors in manufacturing and health care.

Findings from the local data and primary data supported findings from the secondary literature research, but with our own regional nuances.

Summary of EGR 2 Data and Primary Research Findings

Occupation	Causes
All Occupations	➢ EGR 2 lags behind the state in competitiveness and attractiveness to new business ➢ EGR 2 lags in secondary career and technical education participation. ➢ EGR 2's manufacturers use traditional "old school" practices. ➢ There is a lack of lean organizational practices in both the service and manufacturing sectors. ➢ Regional vision and leadership is lacking to move EGR 2 into a competitive position in the 21st century economy. ➢ The region cannot attract the best and brightest talent because of its general wage, education, and environmental characteristics. ➢ Traditional students are not prepared for real world experiences that require valued basic life skills. ➢ Math skills in the region are inadequate for today's

	manufacturing technical jobs. ➢ The older generation perceives that the younger generation believes the cost of time, discipline, dollars and effort are not worth it to obtain technical skills needed for higher wages and that entitlement has become today's value. ➢ There is a lack of awareness among students regarding high wages in skilled health care and manufacturing technical occupations. ➢ Guidance counselors, teachers and administrations encourage students to pursue four-year degrees, where the rate of failure can be as high as 75%. ➢ Non-four-year destined students are viewed as second class to college-bound students. ➢ Teachers are mandated to teach to ISTEP+, negating an emphasis on life and work ethic skills.
Manufacturing in General	➢ Companies do not provide adequate on-the-job training. ➢ Companies must make an immediate profit today, which limits their willingness to expend funds on training. ➢ Secondary schools don't sufficiently expose students to engineering technician, trades, apprenticeships, manufacturing opportunities and Junior Achievement programs. ➢ There is a decline in skilled trades education. ➢ Manufacturing representatives seldom visit schools. ➢ There is a local media bias against U. S. manufacturing. ➢ There is a gender bias toward manufacturing being a male industry.
First Line Supervisors	➢ There is minimal training, coaching and/or mentoring of recently promoted or hired supervisors. ➢ Good technical workers are promoted regardless of whether they have relational or communication skills. ➢ There is an inadequate pool of qualified workers to promote that have both technical and relational/communication skills.
CNC Operators	➢ There is a lack of training with measuring devices at the secondary level. ➢ Inadequate math and computer skills are taught at the secondary level.
Welders	➢ Incumbent welders in EGR 2 report they learned about welding only because they had worked in factory with welders ➢ The turnover in welding is high; workers leave quickly for more money.
Painters, Transportation Equipment	➢ There are no training programs. ➢ Turnover is high.

Health Care in General	➢ Health care is not seen as a good profession to go into due to hours, lack of appreciation, high workloads and stress. ➢ Educational opportunities are not available for all those desiring to enter the health care field. ➢ The supply is inadequate for the demand because of educational issues (see specific occupation). ➢ There is a gender bias toward health care being a female industry.
Registered Nurses	➢ There is an inadequate level of funding of Nursing School faculty budget line items by the General Assembly. ➢ There is a lack of qualified MSN-level instructors. ➢ Financial support for MSN-level programs is inadequate. ➢ Teaching salaries are not competitive with hospital wages.
Respiratory Therapists	➢ There are no regional educational/training programs. ➢ The work done by respiratory therapists has a poor social image. ➢ The region lacks attractiveness to in-migrating graduates
Medical Assistant	➢ Wages are low ➢ Faculty salaries are not competitive with other establishments ➢ There is a social devaluation of lower-level health care occupations
Medical Information Techs/Coders	➢ There is inadequate training capacity at local institutions. ➢ Wages are low for high skill expectations. ➢ Changes have been made in certification requirements; there is now a 95% accuracy requirement ➢ Competition has arisen from technology; coders can be hired by internet companies and do work online for higher pay than can be earned locally.

Alternative Methodologies

The focus group technique deployed in EGR 2 is not so much an alternative methodology as it is an enhanced methodology. Focus groups were held with a variety of people from both the demand and supply sides. Representatives of companies in each NAICS sector were invited to sessions concentrating on their particular sector. Suppliers' representatives, especially WorkOne staff members and trainers/educators, were encouraged to attend, so that they could hear, first hand, what the employers had to say.

Once the participants were gathered and introductions made, the session began with a brainstorming exercise. The facilitator clarified the group's purpose: "Why do you experience shortages in the occupation(s) identified in SSI Phase 1?" The following process was used to collect, organize, and collectively process and analyze the information.

Three Problem-solving Tools Used to Process Information:

1. Brainstorming

The goal of brainstorming was to generate as many ideas as possible in a fairly brief amount of time. The clear emphasis was on quantity, rather than quality, and additional emphasis was placed on the fact that there are no right or wrong responses.

Each specific idea was written on a sticky note, i.e. a 3X5 Post-It paper, since sticky notes can be easily moved. As an idea was written down by its author, the note was taken and stuck on a board. The process was continued until no more ideas seemed to be forthcoming.

2. Affinity Diagrams

Once the notes were affixed to the board, the facilitator directed the participants to go up to the board and arrange the notes into column, each of which was organized according to what they perceived to be a common theme. This was done in silence, since the themes were not identified at this point, and different people arranged the notes differently. If someone saw that a person had placed a note in a column, but believed it should be elsewhere, they were welcome to move the note....as was the first person welcome to move it back. The goal of this activity was to reach a consensus as to the arrangement of notes. The facilitator encouraged the group as a whole to make the decision.

Once consensus was achieved, the facilitator asked the group to assign labels to each of the columns, identifying the theme uniting the different notes. This label had to be a phrase, rather than a word, for the purpose of clarity. This was repeated for all the columns, and usually there were between 3 and 6 columns of notes. The graphic representation of these columns and their headers is an affinity diagram (see diagrams in Appendix).

3. Relational Diagrams

A relational diagram is designed to establish cause-and-effect relationships in a clear and positive way. The process began by determining causal headers for each affinity column. The header phrases that identified the affinity themes of the columns were written on a board or flipchart.

Now the facilitator restated the question that was the focus of the session – "Why do you have trouble finding qualified workers in the specific occupations we have identified?" Thinking of that question, the participants constructed a diagram that indicated causal relationships. To do this, the facilitator led the discussion in rather narrow channels. First, one label was selected, and the facilitator directed the conversation about the relationship between that label and each of the other labels. The operating question was, "Does this category influence the other one, or is it influenced by the other?" If the influence was *away* from the first and *toward* the second, an arrow was drawn showing the direction of the influence. And if the influence was in the

opposite direction, an arrow was drawn that way. If there was no perceived influence of one category on the other, no arrow was drawn, and if the relationship was viewed as mutual, or circular, no arrow was drawn. Once the relations between the first label and all the others had been established by consensus, the facilitator turned to the second label and compared it with all the others, except for the first, which was already decided. Eventually, a diagram showing the relationships between all variables and all other variables was constructed.

Following this analysis, the facilitator led the group by simply counting the arrows, and establishing a ratio of arrows pointing *in* to those pointing *away* from each label. Thus, a ratio of #in:#out was written next to each label on the board or chart. When all the ratios had been recorded, they were evaluated. That label having the greatest number of arrows pointing *to* it was thus identified as the *Root Effect*, since it was the most influenced by other factors. Similarly, the label having the greatest number of arrows directed *away* from it was considered to have the greatest influence on all the other variables, and hence was the *Root Cause*. If two labels had the greatest number of arrows pointing away from them, and the ratios were the same, they were *both* considered Root Causes. If one had fewer arrows *in*, however, it was identified as the Root Cause, because it was less influenced by other factors.

Often, participants were surprised by the results of this exploration. Subsequent discussions were frequently lively.

Quotations/Citations of Relevant Findings

Local media sources ascribe root causes to:

- The lack of young people's preparedness for postsecondary education;
- Demographic shifts (aging baby boomers, not enough young people to replace them, increasing diversity); and
- Generational issues. Generation Y (or "Generation Why" – born 1980-2000) brings different needs and values to the workplace. Research indicates they :
  - Want a leader that can teach;
  - Are looking for company with a good reputation and ethics;
  - Expect cultural diversity;
  - Expect technologically savvy corporations;
  - Place importance on volunteering and community connections;
  - Are team oriented.

"Why can't they be like we were – perfect in every way? What's the matter with kids today?"

Bye Bye Birdie

- Express collective action, optimism about the future, trust in centralized authority, heroic spirit, and balanced work and life as their resonant themes.[8]

The media tend to report on trendy explanations for labor and skill shortages, and anything connected with baby boomers is hot. The media rarely get into the deeper, more arcane factors such as line item budgets in the legislature. The deeper factors just aren't something their audiences can understand and get excited about. Youth are generally considered to be less capable and less dedicated.

More direct occupational information can be found in limited professional publications than in the popular media. For example:

"Some employees feel under-appreciated. Says one respiratory therapist, 'I would not recommend this profession. We are severely underpaid and taken for granted. I can honestly say you do begin to feel like the redheaded stepchild.'

> *"Health Professionals Share Their Candid (and Mixed) Feelings about the Field;" Workforce Management, August 9, 2005*

"Expectations aren't being met. Registered nurses…were disappointed in some things they found after taking their jobs. Prior to coming on board, more than 40 percent expected their employers to be caring. More than 30% expected their employers to be flexible. Many also believed their employers were dedicated to employee development. Once they arrived, they found something quite different. Not even 10 percent of nurses say that their employers are caring, flexible, open to employee feedback, or dedicated to employee development."

> *"Health Professionals Share Their Candid (and Mixed) Feelings about the Field;" Workforce Management, August 9, 2005.*

Local media reports include:

"In the year 2000, baby-boomers, those born between 1946 and 1964, composed 46% of Indiana's labor-force – the largest segment of all generational groups. Other generational groups include Generation X, born between 1965 and 1976 (also known as "baby-busters"); Generation Y, born between 1977 and 1999; and the 2nd Millennium Generation, born in 2000 and after. By 2015, Generation Y, the youngest generation currently in the labor force, will compose 46% while the boomers retirements will decrease that generation's share of the labor force to 27 percent. From now through 2015, Generation Y's workforce numbers will increase faster than boomers retire."

"A trio of researchers with Indiana University Bloomington's Center for Evaluation & Educational Policy cited several sobering post-secondary statistics in an Education Policy Brief published last winter. Only 36 percent of high school graduates' transcripts indicated students were 'college-ready.' "

[8] www.generationwhy.com

Don Cronk, guidance and counseling director at Mishawaka High School.... "We need people to be more technologically proficient so we need them to be better at math and better readers and speakers."

"Pre-Emptive Remediation," South Bend Tribune, November 28, 2005

"As soon as 2006, predicts the Bureau of Labor Statistics, there will be 151 million jobs in the US economy, but only 141 million people in the workforce to fill them....what could ameliorate these trends, of course, are continued high rates of productivity growth." (cf. the relation between productivity and wages noted above)

"The workforce of the 21st century will be diverse; 70% to 80% of new entrants will be women, minorities, and immigrants....organizations that fail to embrace diversity as an effective competitive strategy will experience dysfunction, increased turnover, litigation, absenteeism, poor communication, and low productivity."

"Workforce: Skilled worker shortage to persist." LookSmart; Growth Strategies, June, 2002

"There are four (additional) industries that should be noted as well – each is in the "top ten" in terms of employment of workers age 45 and older, each have (sic) average wages above the state average and each employ a greater percentage of older workers, than the state average. Those four are transportation equipment manufacturing (42 percent, $4207), hospitals (41 percent, $3095), merchant wholesalers (40 percent, $3884), and ambulatory care services (39 percent, $3820). Importantly, each of these industries has high employment totals today and is expected to grow. While (other) industries may resolve some of the problem of replacing retiring workers via technological change or attrition, these four industries will have a pressing need to find ways to make up for the loss of older workers."

"*Boomer Retirements in Indiana*" InContext September 2005, vol. 6, no. 6.

Addidtional relevant information comes from our primary data sources:

"Supervisors have one of the most difficult and stressful jobs to perform; they are accountable and responsible for everything that happens or doesn't happen in their departments. Often, they are the least appreciated group of employees. Current employees don't want to be promoted into this position for these reasons. It's difficult to find supervisors outside the company who have knowledge of our business combined with leadership skills and experience."

EGR 2 Manufacturing Human Resources Director

"We have found the most effective way is to "grow our own." One way we do this is to hire students who are pursuing the career we are in need of. Another way is to find current employees who are interested in the careers we need and pay them to go to school. Our first approach works best because most of those students have figured out a way to go to school and work. They employees we have find it difficult to take more

than one class at a time because they have to continue to work fulltime in order to survive financially. However, employees who did figure out a way to reduce their work hours so they can take more classes end up staying at [hospital name] after graduation. We had a program a few years ago where we paid for employees' class time and we saw a large increase in the number of employees who were interested in pursuing nursing based on this program. We offered the program about 2 years at which time we ran out of money and could no longer afford paid class time. As soon as we ended the program, we had a decrease in the number of employees who continued to pursue their nursing degree."

EGR 2 Hospital Human Resources Director

"For 24/7 organizations, you will find it hard to fill position openings on the evening or night shift. What happens is new graduates may take time off the shifts but as soon as they are trained and hear of an opening with more appealing hours they will leave, usually for a day or evening shift. Another reason it is hard to fill positions is that employees who are working have to work twice as hard because of shortages and work a lot of overtime. If they can go to another employer where they are assured they won't have to work overtime, they leave. Being on call is a reason we hear employees leave employers to work elsewhere. Another reason is rate of pay. If HR departments don't stay up with what's going on in the market within that profession, they will leave to go to another organization that is paying more."

EGR 2 Hospital Human Resources Director

Section 3: Regional Coalition and Industry Partner Engagement

Coalition Involvement

All coalition partners had opportunity for input into the root cause analysis. A meeting of the coalition was held December 20 to present the findings, seek the members' additional insights, and ensure consensus on root causes, sensitivities, and impacts. The coalition members represent every county in EGR 2, and include representatives of the targeted subsectors. The list of coalition members was included in the original SSI application.

Regional Coverage

The identification and analysis of root causes was conducted on a regional basis and was not the result of separate self-interested activities by individual WIBs and/or their component jurisdictions, but was instead conducted on a regional basis. A member of the North Central Indiana WIB and other Fulton County representatives sit on the EGR 2 consortium to ensure the project is truly regional, and not just in the interests of the Northern Indiana board.

Primary research into root causes was conducted across the entire region:

- Nine focus groups were held in advanced manufacturing. There was at least 1 focus group held in each county of EGR 2.
- A regional health care summit was held that involved health care providers from across the region.
- Incumbent workers were surveyed in every county. There were 1078 responses from manufacturing workers and 396 from health care.
- An e-mail survey was conducted with hospital HR directors from across the region, and 4 responded; a similar survey in manufacturing yielded 12 responses.
- Another e-mail survey with postsecondary health programs provided 6 responses.

Additionally, secondary research was conducted on-line to obtain information about secondary school and postsecondary programs related to the targeted occupations throughout the region.

Industry Partner Involvement

Industry partners who participated in the primary research included:

Health Care

- Memorial Hospital
- Kosciusko Community Hospital
- Woodlawn Hospital
- Bremen Community Hospital
- Goshen Health System
- St. Joseph Regional Medical Center
- Elkhart General Hospital
- Long Term Care Organizations

Manufacturing

- Polygon
- Plastics Solutions
- NIBCO
- Nyloncraft
- Hoosier Tank & Mfg.
- Lock Joint Tube
- Bull Moose Tube
- Delta Tools Mfg.
- Daman Products Co.
- Allied Specialty Precision
- Curtis Products
- General Sheet Metal Works
- Dutchmen Mfg.
- Phillips Products
- Ventline
- Textron Fastening Systems
- Utilimaster
- Paragon Medical
- Master Metal Engineering
- Plymouth Foundry
- Ferro Coatings Corp.
- Dexter Axle
- Indalex inc.
- Biomet
- Dalton Corp.
- AM General
- Syscon Intl.
- AE Techron
- Amerimax Laminated Products
- Zimmer
- Whitley Products
- Magnetech Industrial Services
- Federal-Mogul
- Modern Materials
- Gaerte Engines
- Qynergy

It is at the regional level where economic development is implemented and where the effects of economic shocks are felt. And it is at the regional level where talent development can help to spur economic growth and provide hope and opportunity to regions that have lost both.

- Emily Stover DeRocco

Assistant Secretary of Labor

Economic Development Symposium, September 22, 2005